



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,098	04/13/2004	Kowang Liu	HT03-026	4539

7590 03/20/2008  
STEPHEN B. ACKERMAN  
28 DAVIS AVENUE  
POUGHKEEPSIE, NY 12603

EXAMINER
----------

CIRIC, LJILJANA V

ART UNIT	PAPER NUMBER
----------	--------------

3744

MAIL DATE	DELIVERY MODE
-----------	---------------

03/20/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/823,098	<b>Applicant(s)</b> LIU ET AL.	
	<b>Examiner</b> Ljiljana (Lil) V. Ciric	<b>Art Unit</b> 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2007 and on 8 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 25-29 is/are pending in the application.
- 4a) Of the above claim(s) none is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 25-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 17, 2007 has been entered.
2. Claims 1 through 6 and 25 through 29 remain in the application, all as amended, either directly or indirectly.

### ***Response to Arguments***

3. Applicant's arguments with respect to the rejection of claims 1 through 6 and 25 through 29 filed on November 8, 2007 based on the Jensen et al. reference have been fully considered but they are not persuasive.

In response to applicant's argument that the Jensen et al. reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., there being a thermal short circuit to convey heat directly to the substrate) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the Jensen et al. patent/invention is inoperable at least in part, the examiner hereby notes that, in order for this argument to be persuasive, objective evidence must be factually supported by an appropriate affidavit or declaration to be of probative value. See *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); *Ex parte George*, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991). The arguments of counsel cannot take the place of evidence in the record with

Art Unit: 3744

regard to this matter. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding unexpected results, commercial success, solution of a long-felt need, **inoperability of the prior art**, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. Furthermore, since every patent is presumed valid (35 U.S.C. 282), and since that presumption includes the presumption of operability (Metropolitan Eng. Co. v. Coe, 78 F.2d 199, 25 USPQ 216 (D.C.Cir. 1935), examiners should not express any opinion on the operability of a patent. Affidavits or declarations attacking the operability of a patent cited as a reference must rebut the presumption of operability by a preponderance of the evidence. In re Sasse, 629 F.2d 675, 207 USPQ 107 (CCPA 1980).

### ***Specification***

4. Receipt and entry of the amended abstract is hereby acknowledged.
5. The amended abstract of the disclosure is objected to because it does not avoid using phrases which can be implied (i.e., "is disclosed"). Correction is required. See MPEP § 608.01(b).
6. The specification is still objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: there appears to be no antecedent basis in the specification for the micro-structure as recited in the claims.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
8. Claims 25 through 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, there is no antecedent basis for the limitation "contact" [claim 25, line 3] in the claim, and it is also not clear which particular structures are encompassed by the limitations "that extends

Art Unit: 3744

upwards from contact with said substrate”, thus rendering indefinite the metes and bounds of protection sought by claim 25 and all claims depending therefrom.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. As best can be understood in view of the indefiniteness of claims 25, 27, and 28, claims 1, 3, 4, 25, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Jensen et al.

Jensen et al. (especially Figure 5) discloses a method of and a corresponding apparatus for dissipating heat generated by a coil 536 located within a micro-structure that is on a substrate 506 essentially as claimed, including, for example: providing a thermally conductive pedestal 522 or 524 that extends upwards from the substrate 506; and, providing a dielectric layer 532 constructed of a material which is thermally conductive material (i.e., a silicon alloy) that thermally connects the pedestal 522 or 524 to the coil 536. Furthermore, Jensen et al. discloses that the layer of thermally conductive material or dielectric layer 532 has a thickness between 1 and 2.5 microns (i.e., is preferably between 1 and 1.5 microns thick). See column 6, lines 51-67 and column 7, lines 1-6.

The reference thus reads on the claims.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3744

12. As best can be understood in view of the indefiniteness of claims 26 and 29, claims 2, 5, 6, 26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen et al.

As disclosed in greater detail above, Jensen et al. discloses a heat dissipation method and a corresponding apparatus for dissipating heat generated by a coil 536 located within a micro-structure that is on substrate 506 essentially as claimed, as described in greater detail above.

With regard to claims 2 and 26, while Jensen et al. does not, for example, disclose that the layer of thermally conductive material has a thermal conductivity which is specifically between 100 and 400 W/mK, Jensen et al. does disclose that the thermal conductivity of the thermally conductive dielectric layer 532 should be high, and preferably, for example, at or above 65 W/mK at 20 Celsius [see column 6, lines 61-64], which significantly overlaps the range cited in the claims of the instant application. Jensen et al. also cites several materials which would meet the claimed thermal conductivity range criteria [see column 6, lines 64-67; column 7, lines 1-6]. It would therefore have been obvious to one skilled in the art at the time of invention to select a highly thermally conductive material having a thermal conductivity in the range recited in claims 2 and 26 of the instant application in order to ensure that the heat generated by the coil 536 is dissipated away from the coil as quickly as possible in order to avoid thermal damage to the apparatus.

Similarly, with regard to claims 5, 6, and 29, while Jensen et al. does disclose a microstructure which inherently has features sized within the order of magnitude recited by the claims of the instant application, Jensen et al. does not specifically disclose the pedestal cross-sectional areas and coil heat generating rates recited in the claims of the instant application, absent a showing of unexpected results resulting from having the pedestal cross-sectional areas and the coil heat generating rates within the recited ranges, it would have been obvious to one skilled in the art at the time of invention to modify the heat dissipation method and corresponding heat extractor structure of Jensen et al. by designing the pedestals 522 or 524 to have a cross-sectional area within the range recited within the range recited in

Art Unit: 3744

claims 5 and 29 of the instant application and to have coil 536 generate heat at the rate recited in claim 6 of the instant application in order to ensure an optimal or desired heat dissipation rate away from coil 536 and minimize the likelihood of any thermal damage to the apparatus.

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric whose telephone number is 571-272-4909. The examiner works a flexible schedule, but can normally be reached weekdays between 10:30 a.m. and 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ljiljana (Lil) V. Ciric/

Primary Examiner, Art Unit 3744